UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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CESARI AND MCKENNA, LLP
88 BLACK FALCON AVENUE
BOSTON, MA 02210

EXAMINER
NGUYEN, DUSTIN

ART UNIT	PAPER NUMBER
2154	

DATE MAILED: 11/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	09/888,677	GANGADHARAN, SUSHILKUMAR
	Examiner	Art Unit
	Dustin Nguyen	2154

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _13 September 2006_.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-41_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) _6-8_ is/are allowed.

6)☒ Claim(s) _1-7 and 9-41_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☒ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _attached_ .

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

1.   Claims 1-41 are presented for examination.

Response to Arguments

2.   Applicant's arguments filed 09/13/2006 have been fully considered but they are not

persuasive.

3.   ' As per remarks, Applicants' argued that (1) Mankude does not teach or suggest

Applicants' claimed novel step of associating each fragment to an underlying link of the

aggregate on the basis of an Internet protocol (IP) identifier (ID) of each datagram and a number

of active links of the aggregate and transmitting the fragment over its associated underlying link

from the server to the computer network to transmit fragments of the datagram over the same

associated underlying link.

4.   As to point (1), Mankude discloses a system that facilitates forwarding fragments of a

packet received from a source node to a destination node [Abstract]. The system of Mankude

includes a cluster of multiple server nodes that connect to each other through private interfaces [

i.e. aggregate links] [224, 225, Figure 2; and col 4, lines 53-63]. Mankude discloses the packet

received at the intermediate node is fragmented to the size of the MTU of the interface on which

the packet is going to be sent, then create a holder object for each packet that is in the process of

being forwarded to a server instance, and the holder object includes a packet ID, which uniquely

identifies the packet, and a fragment pointer, which points to a link list of packet fragments [i.e.

associating each fragment to an underlying link of the aggregate on the basis of an Internet

protocol (IP) identifier (ID) of each datagram and a number of active links of the aggregate] [

Figure 4; and col 6, lines 20-44]. Also, Manduke discloses the system then forwards the first

fragment to the destination node, if any additional fragments are linked into the holder object,

then system forwards these additional fragments as well [i.e. transmitting the fragment over its

associated underlying link from the server to the computer network to transmit fragments of the

datagram over the same associated underlying link] [Figure 5; and col 7, lines 4-34].

5.   As per remarks, Applicants' argued that (2) Mankude does not disclose assigning packets

or datagrams to links using an IP identifier as claimed by Applicant.

6.   As to point (2), Mankude discloses a packet identifier (ID) which identifies the packet to

which packet fragment belongs [306, Figure 3; and col 5, lines 60-63] and links them into a

holder object [Figure 4; and col 6, lines 20-44], then forwards the first and any fragments that

are linked into the holder object to the destination node [i.e. assigning packets or datagrams to

links using an IP identifier] [Figure 5; and col 7, lines 23-26].

Claim Rejections - 35 USC § 102

7.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed

in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by

another filed in the United States before the invention by the applicant for patent, except that an international application

filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed

in the United States only if the international application designated the United States and was published under Article

21(2) of such treaty in the English language.

8.   Claims 1, 9-11, 16, 30 and 32 are rejected under U.S.C. 102(e) as being anticipated by

Mankude et al. [US Patent No 6,795,866].

9.   As per claim 1, Mankude discloses the invention substantially as claimed including a

method for uniformly distributing data transmitted by a server over a plurality of underlying

links of an aggregate within a computer network comprising [i.e. forwards the packets to various

nodes within clustered computing system based upon load balancing policies and other

considerations] [col 4, lines 10-19 and lines 50-53]:

defining a unit of data as a datagram [i.e. packet] [Abstract; and col 1, lines 46-50];

apportioning each datagram into at least one fragment at the server [i.e. divide packet

into fragments for transmission] [Figure 3; and col 1, lines 54-56];

associating each fragment to an underlying link of the aggregate [i.e. keep track of how

packet fragments are associated with destination nodes] [col 1, lines 62-64; col 4, lines 53-col 5,

lines 9] on the basis of an Internet protocol (IP) identifier (ID) of each datagram and a number

of active links of the aggregate [i.e. the system uses a packet identifier from the fragment to look

up an entry for the packet within a packet forwarding data structure] [Abstract; col 2, lines 11-

27 and lines 57-63]; and

transmitting the fragment over its associated underlying link from the server to the

computer network [i.e. forwards the fragments to destination nodes] [Abstract; col 4, lines 48-

53; and col 5, lines 40-45] to transmit fragments of the datagram over the same associated

underlying link [Figure 5; and col 6, lines 64-col 7, lines 26].

10.   As per claim 9, Mankude discloses loading at least one data buffer of the server with the

at least one fragment; fetching the fragment from the data buffer; and loading at least one queue

of the server with the fragment, the queue associated with the underlying link [i.e. packet

fragments can queue up in holder object] [Figure 4; and col 6, lines 37-52].

11.   As per claim 10, it is rejected for similar reasons as stated above in claim 1. Furthermore,

Mankude discloses a processor, a memory coupled to the processor and having locations

addressable by the processor, and an operating system resident in the memory locations and

executed by the processor [i.e. server nodes] [Figure 2; and col 4, lines 39-47], the operating

system configured to implement a modified load balancing technique [col 1, lines 33-35; col 4,

lines 50-53; and col 5, lines 31-39].

12.   As per claim 11, it is rejected for similar reasons as stated above in claim 1.

13.   As per claim 16, it does not teach or define any new limitations above claim 1 and

therefore is rejected for similar reasons.

14.   As per claim 30, it is rejected for similar reasons as stated above in claim 1. Furthermore,

Mankude discloses transmitting all of the one ore more fragments associated with the IP ID over

the network link [i.e. ensure that packets belonging to the same TCP connection or UDP

instance are sent to the same service instance] [col 1, lines 52-54; and col 4, lines 15-19].

15.   As per claim 32, it is rejected for similar reasons as stated above in claims 10 and 30.

Claim Rejections - 35 USC § 103

16.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

17.   Claims 2, 3,12, 13, 17 and 18 are rejected under U.S.C. 103(a) as being unpatentable over

Mankude et al. [US Patent No 6,795,866], in view of Westberg [US Patent No. 6,791,982].

18.   As per claim 2, Mankude does not specifically disclose wherein the step of associating

comprises the step of producing a result representing a remainder upon dividing the IP ID by the

number of active links. Westberg discloses wherein the step of associating comprises the step of

producing a result representing a remainder upon dividing the IP ID by the number of active

links [i.e. modulo] [col 8, lines 37-49]. It would have been obvious to a person skill in the art

at the time the invention was made to combine the teaching of Mankude and Westberg because

Westberg's teaching would allow for segmentation for transmission of large data packets to

increase the speed of transferring information.

19.   As per claim 3, Mankude discloses wherein the step of associating further comprises:

        rotating the fragments of each datagram among all the underlying links to thereby ensure

that all fragments having the same IP ID are provided to the same physical link of the aggregate [

i.e. ensure that packets originating from the same client are directed to the same server] [col 1,

lines 52-54; and col 4, lines 15-19].

        Mankude does not specifically disclose

        calculating the IP ID of each datagram in a sequential manner.

        Westberg discloses

        calculating the IP ID of each datagram in a sequential manner [Figure 4; and col 8, lines

14-36].

        It would have been obvious to a person skill in the art at the time the invention was made

to combine the teaching of Mankude and Westberg because Westberg's teaching of sequential

manner would allow receiving node to detect lost segments [Westberg, col 8, lines 31-33].

20.   As per claims 12 and 13, they are rejected for similar reasons as stated above in claims 2

and 3.

21.   As per claims 17 and 18, they are rejected for similar reasons as stated above in claims 2

and 3.

22.   Claims 4, 14, 19 are rejected under U.S.C. 103(a) as being unpatentable over Mankude et

al. [US Patent No 6,795,866], in view of Narad et al. [US Patent No 6,157,955].

23.   As per claim 4, Mankude does not specifically disclose wherein the step of associating

comprising:

        logically combining the IP ID with a predetermined mask to produce a quantity;

        right shifting the quantity a predetermined number of places; and

        establishing a threshold at which a group of data is forwarded to each underlying link of

the aggregate.

        Narad discloses wherein the step of associating comprises:

        logically combining the IP ID with a predetermined mask to produce a quantity (Col. 37,

lines 2-6; Col. 91, lines 51-56);

        right shifting the quantity a predetermined number of places (Col. 42, lines 42-48); and

        establishing a threshold at which a group of data is forwarded to each underlying link of

the aggregate (Col. 6, lines 56-62; Col. 8, lines 21-29).

It would have been obvious to one of ordinary skill in the art at the time of invention was

made to combine the teaching of Mankude and Narad because they both deal with processing

data in-order to transmit information through a network of communication links. Furthermore,

the teaching of Narad to combine the IP ID with a predetermined mask, then to right shift the

combined value a predetermined number of places while establishing a threshold at which a

group of data is forwarded to each underlying link accelerates the association of a datagram and

increases efficiency with the system Boucher discloses.

24.   As per claims 14 and 19, they do not teach or define any new limitations above claim 4

and therefore is rejected for similar reasons.

25.   Claims 5, 15 and 20 are rejected under U.S.C. 103(a) as being unpatentable over

Mankude et al. [US Patent No 6,795,866], in view of Narad et al. [US Patent No 6,157,955],

and further in view of Westberg [US Patent No 6,791,982].

26.   As per claim 5, it is rejected for similar reasons as stated above in claims 2 and 4.

Furthermore, Narad discloses a combined quantity of IP ID and a predetermined mask (Col. 37,

lines 2-6; Col. 91, lines 51-56); and right shifting the combined quantity a predetermined number

of places (Col. 42, lines 42-48). It would have been obvious to one of ordinary skill in the art at

the time the invention was made to combine the teachings of Mankude, Narad and Westberg

because they each discuss methods process a datagram or packet in-order to distribute the data

over a network through a plurality of links. Furthermore, the teaching of Narad to combine the

quantity of the right shifted IP ID and predetermined mask in connection with Takagi's teaching

to produce a result by dividing the combined quantity by the number of links allows for data to

be transmitted more efficiently and uniformly through grouped underlying links within a

computer network.

27.   Claims 15 and 20 do not teach or define any new limitations above claim 5 and therefore

is rejected for similar reasons.

28.   Claims 21, 22, 27-29, 31, 33-37 are rejected under U.S.C. 103(a) as being unpatentable

over Mankude et al. [US Patent No 6,795,866], in view of Lyles et al. [US Patent No 6,563,829

].

29.   As per claim 21, it is rejected for similar reasons as stated above in claim 1. Furthermore,

Mankude does not specifically disclose a round robin policy based. Lyles discloses a round

robin policy based [i.e. fair queuing such as round-robin] [col 6, lines 34-43; and col 11, lines

43-62]. It would have been obvious to combine the teaching of Mankude and Lyles because

Lyles's teaching of round robin would allow to provide a fairly and dynamically allocating

transmission bandwidth in a shared-media packet-switch network [Lyles, Abstract; and col 1,

lines 15-18].

30.   As per claim 22, Lyles discloses a number of links in the plurality of links [i.e. links] [col 9, lines 9-20].

31.   As per claim 27, it is rejected for similar reasons as stated above in claim 10. Furthermore, Lyles discloses the operating system further configured to include a virtual interface process [i.e. virtual circuits] [col 11, lines 51-55]. It would have been obvious to a person skill in the art at the time the invention was made to combine the teaching of Mankude and Lyles because Lyles's teaching of virtual circuit would allow to provide a fairly and dynamically allocating transmission bandwidth in a shared-media packet-switch network [Lyles, Abstract; and col 1, lines 15-18].

32.   As per claims 28 and 29, they are rejected for similar reasons as stated above in claim 21.

33.   As per claim 31, it is rejected for similar reasons as stated above in claim 21.

34.   As per claim 33, it is rejected for similar reasons as stated above in claim 21.

35.   As per claim 34, Mankude does not specifically disclose apportioning data substantially equally over the plurality of underlying links of the aggregate within the computer network. Lyles discloses apportioning data equally over the plurality of underlying links of the aggregate within the computer network [Abstract; col 6, lines 24-43; and col 11, lines 43-49]. It would have been obvious to a person skill in the art at the time the invention was made to combine the

teaching of Mankude and Lyles because Lyles's teaching would allow to provide a fairly and

dynamically allocating transmission bandwidth in a shared-media packet-switch network [Lyles,

Abstract; and col 1, lines 15-18].

36.   As per claims 35 and 36, they are rejected for similar reasons as stated above in claim 34.

37.   As per claim 37, it is rejected for similar reasons as stated above in claim 22.

38.   Claims 23, 24, 38 and 39 are rejected under U.S.C. 103(a) as being unpatentable over

Mankude et al. [US Patent No 6,795,866], in view of Lyles et al. [US Patent No 6,563,829],

and further in view of Westberg [US Patent No 6,791,982].

39.   As per claim 23, Mankude and Lyles do not specifically disclose wherein the step of

associating comprises the step of producing a result representing a remainder upon dividing the

IP ID by the number of active links. Westberg discloses wherein the step of associating

comprises the step of producing a result representing a remainder upon dividing the IP ID by the

number of active links [i.e. modulo] [col 8, lines 37-49]. It would have been obvious to a

person skill in the art at the time the invention was made to combine the teaching of Mankude,

Lyles and Westberg because Westberg's teaching would allow for segmentation for transmission

of large data packets to increase the speed of transferring information.

40.   As per claim 24, Mankude discloses wherein the step of associating further comprises:

rotating the fragments of each datagram among all the underlying links to thereby ensure

that all fragments having the same IP ID are provided to the same physical link of the aggregate [

i.e. ensure that packets originating from the same client are directed to the same server] [col 1,

lines 52-54; and col 4, lines 15-19].

Mankude and Lyles do not specifically disclose

calculating the IP ID of each datagram in a sequential manner.

Westberg discloses

calculating the IP ID of each datagram in a sequential manner [Figure 4; and col 8, lines

14-36].

It would have been obvious to a person skill in the art at the time the invention was made

to combine the teaching of Mankude, Lyles and Westberg because Westberg's teaching of

sequential manner would allow receiving node to detect lost segments [Westberg, col 8, lines

31-33].

41.   As per claims 38 and 39, they are rejected for similar reasons as stated above in claims 23

and 24.

42.   Claims 25, 26 and 40 are rejected under U.S.C. 103(a) as being unpatentable over

Mankude et al. [US Patent No 6,795,866], in view of Lyles et al. [US Patent No 6,563,829],

and further in view of Narad et al. [US Patent No 6,157,955].

43.   As per claim 25, Mankude and Lyles do not specifically disclose wherein the step of

associating comprising:

    logically combining the IP ID with a predetermined mask to produce a quantity;

    right shifting the quantity a predetermined number of places; and

    establishing a threshold at which a group of data is forwarded to each underlying link of

the aggregate.

    Narad discloses wherein the step of associating comprises:

    logically combining the IP ID with a predetermined mask to produce a quantity (Col. 37,

lines 2-6; Col. 91, lines 51-56);

        right shifting the quantity a predetermined number of places (Col. 42, lines 42-48); and

        establishing a threshold at which a group of data is forwarded to each underlying link of

the aggregate (Col. 6, lines 56-62; Col. 8, lines 21-29).

    It would have been obvious to one of ordinary skill in the art at the time of invention was

made to combine the teaching of Mankude, Lyles and Narad because they both deal with

processing data in-order to transmit information through a network of communication links.

Furthermore, the teaching of Narad to combine the IP ID with a predetermined mask, then to

right shift the combined value a predetermined number of places while establishing a threshold at

which a group of data is forwarded to each underlying link accelerates the association of a

datagram and increases efficiency with the systems Mankude and McCullough disclosed.

44.   As per claim 26, it is rejected for similar reasons as disclosed above in claims 2 and 21.

45.   As per claim 40, it is rejected for similar reasons as stated above in claim 25.

46.   Claim 41 is rejected under U.S.C. 103(a) as being unpatentable over Mankude et al. [US

Patent No 6,795,866], in view of Lyles et al. [US Patent No 6,563,829], and further in view of

Narad et al. [US Patent No 6,157,955] and Westberg [US Patent No 6,791,982].

47.   As per claim 41, Mankude, Lyles and Narad do not specifically disclose wherein the step

of associating comprises the step of producing a result representing a remainder upon dividing

the IP ID by the number of active links. Westberg discloses wherein the step of associating

comprises the step of producing a result representing a remainder upon dividing the IP ID by the

number of active links [i.e. modulo] [col 8, lines 37-49]. It would have been obvious to a

person skill in the art at the time the invention was made to combine the teaching of Mankude,

Lyles, Narad and Westberg because Westberg's teaching would allow for segmentation for

transmission of large data packets to increase the speed of transferring information.

48.   Applicant's arguments with respect to claims 21-29, 31 and 33-41 have been considered

but are moot in view of the new ground(s) of rejection.

49.   Applicant's amendment necessitated the new ground(s) of rejection presented in this

Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the date of this

final action.

Conclusion

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Dustin Nguyen whose telephone number is 571-272-3971. The

examiner can normally be reached on Monday - Friday 8:30 a.m. - 5:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, John A. Follansbee can be reached on (571) 272-3964. The fax phone number for

the organization where this application or proceeding is assigned is 571-273-3970.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

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